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## ABSTRACT

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### PSEUDO-RANDOM NUMBER GENERATOR

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4 The present invention provides a method and an apparatus for generating pseudo-random  
5 numbers with very long periods and very low predictability. A seed random sequence is  
6 extended into a much longer sequence by successive iterations of matrix operations.  
7 Matrices of candidate output values are multiplied by non-constant transition matrices  
8 and summed with non-constant offset matrices; the result is then processed through one  
9 or more modulus operations, including non-constant modulus operators, to generate the  
10 actual output values. The invention also includes the possibility of introducing non-  
11 invertible matrices into the operations. The invention creates final results that are  
12 equidistributed over large samples. Secondary pseudo-random and other processes  
13 determine the non-constant transition matrices, offset matrices, and modulus operators.

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